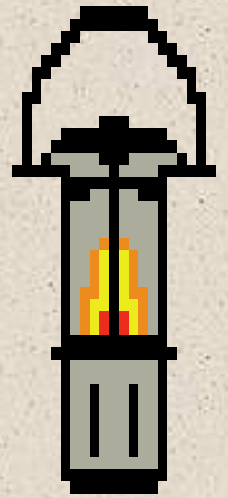
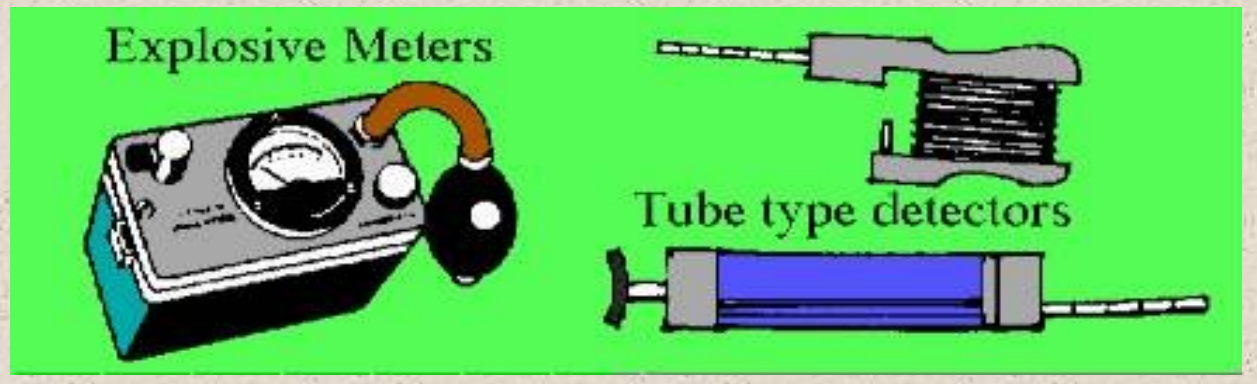
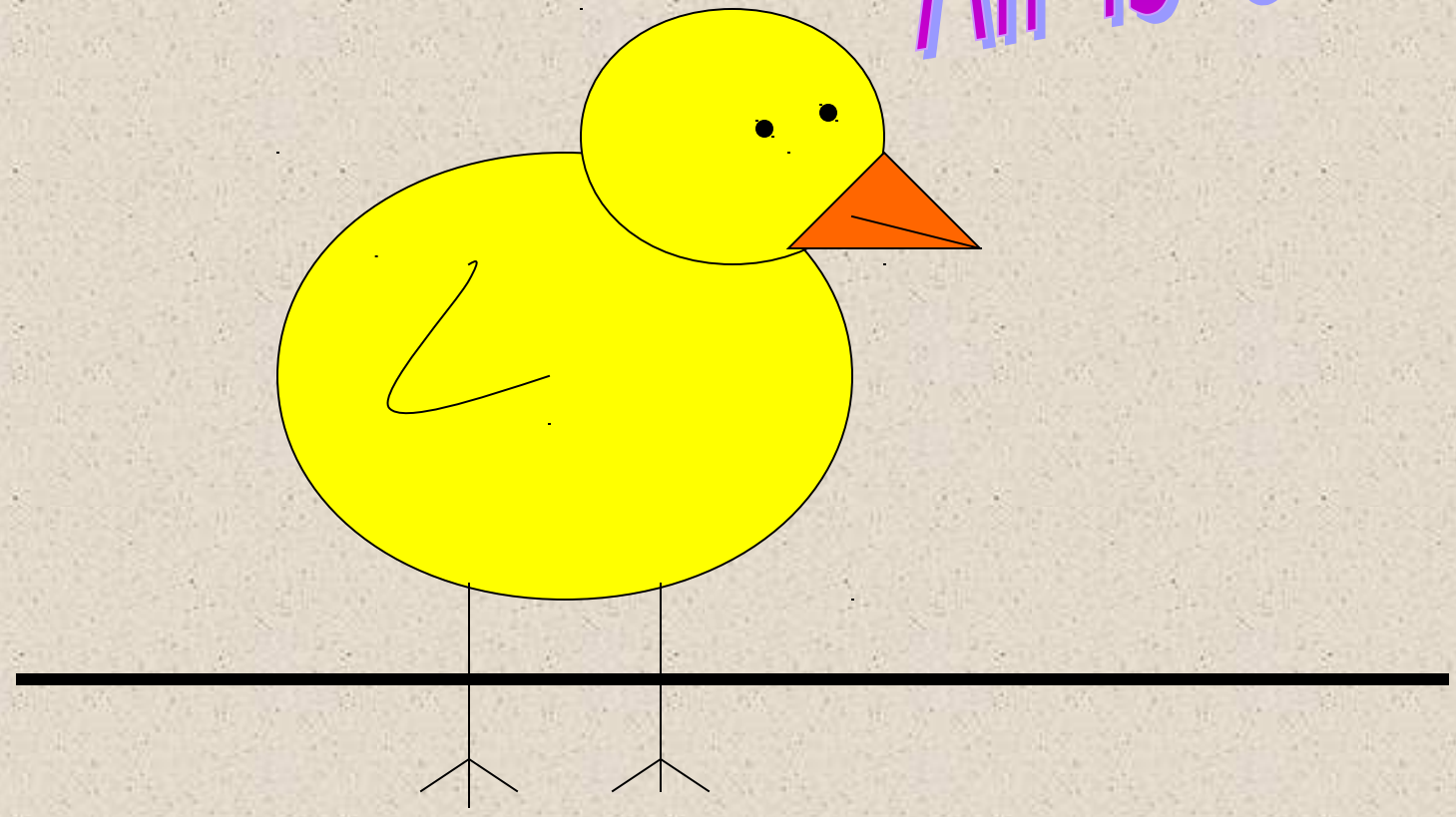


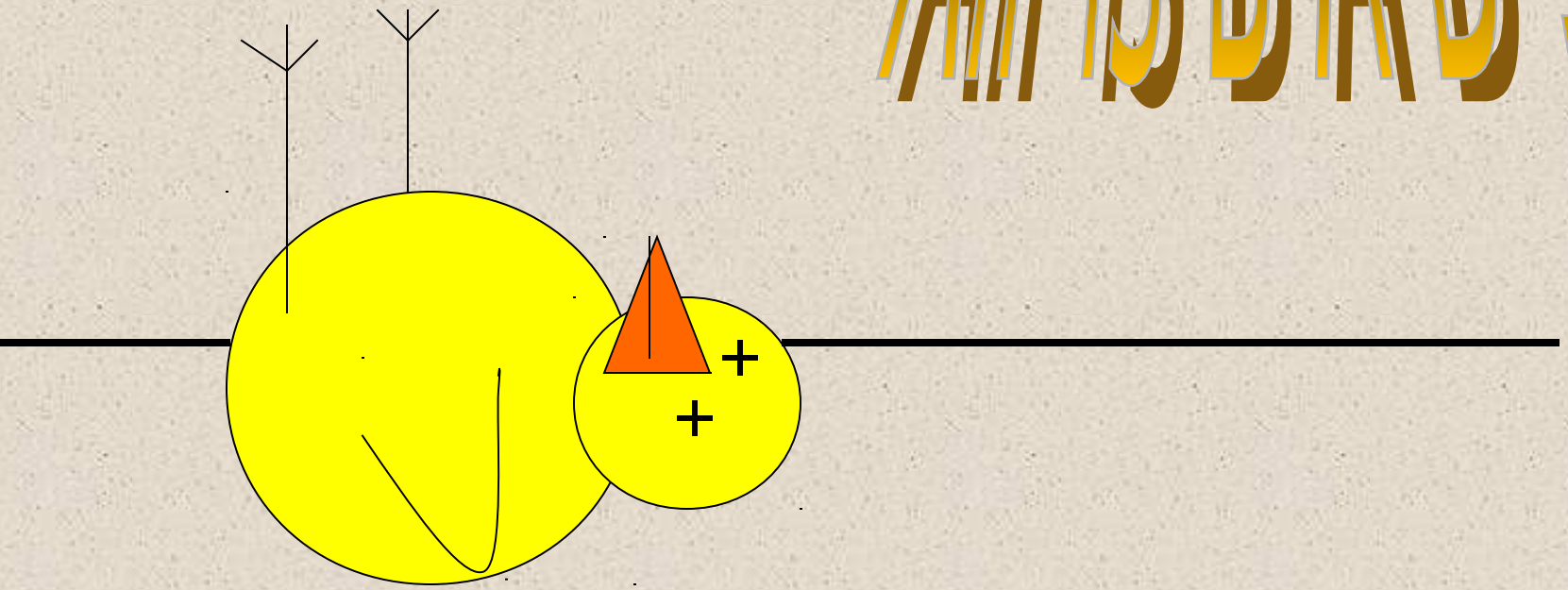
GAS FREE EQUIPMENT
LT 7.05a



Air is GOOD!

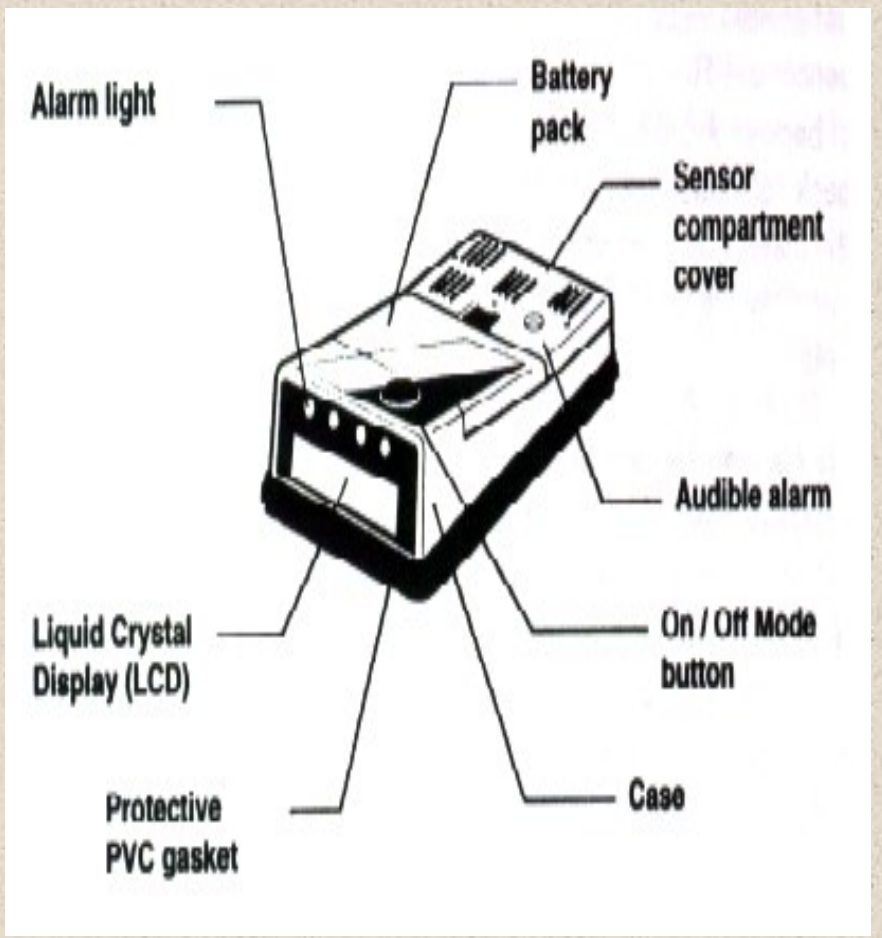


Air is BAD!



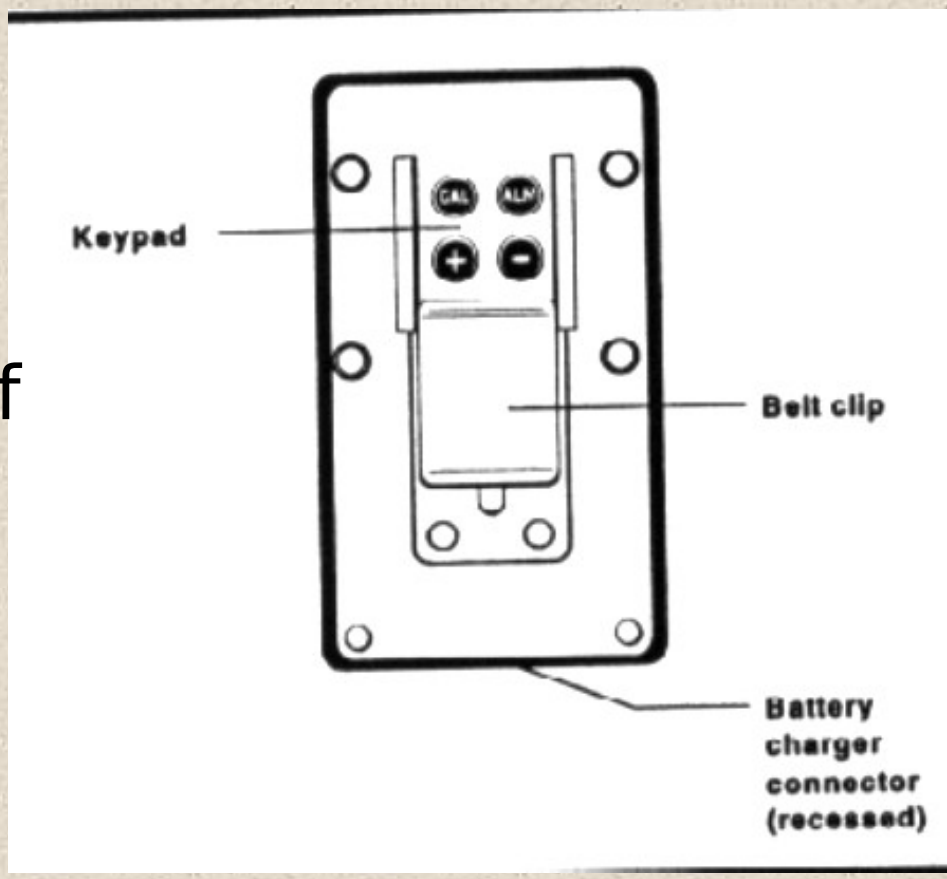
FOUR GAS ANALYZER

- Detects oxygen levels, combustible gas percentage, and toxics (CO and H2S)
- Rechargeable NiCad battery pack
- Hand aspirator draws one foot per squeeze
- Sample pump draws one foot per second
- Sample probe



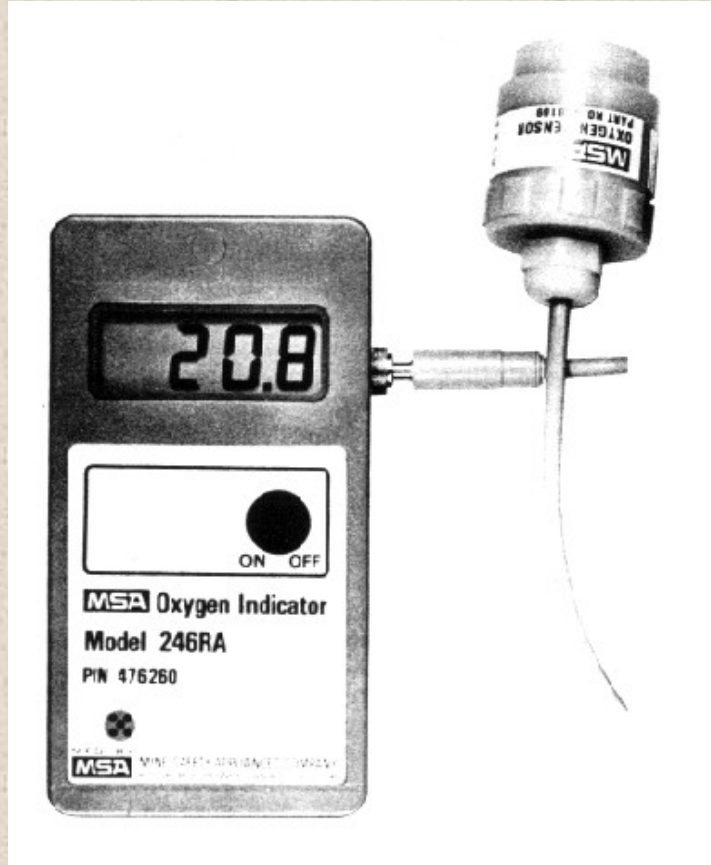
FOUR GAS ANALYZER
Operating Procedures

- Push on/off button
- Conduct bump test
- Perform 10 point test
- To turn off, hold on/off button for 3 seconds
- X indicates UEL



Oxygen Analyzers
MSA 246 RA

- Hand held meter
- 10 ft. drop cord
- On - off switch
- 0-25% O2 meter
- Calibration setscrew
- Uses 9 volt battery
  - “LoBatt” indication
- To use, turn on unit.
- Set meter at 20.8%
- Conduct 10 point test



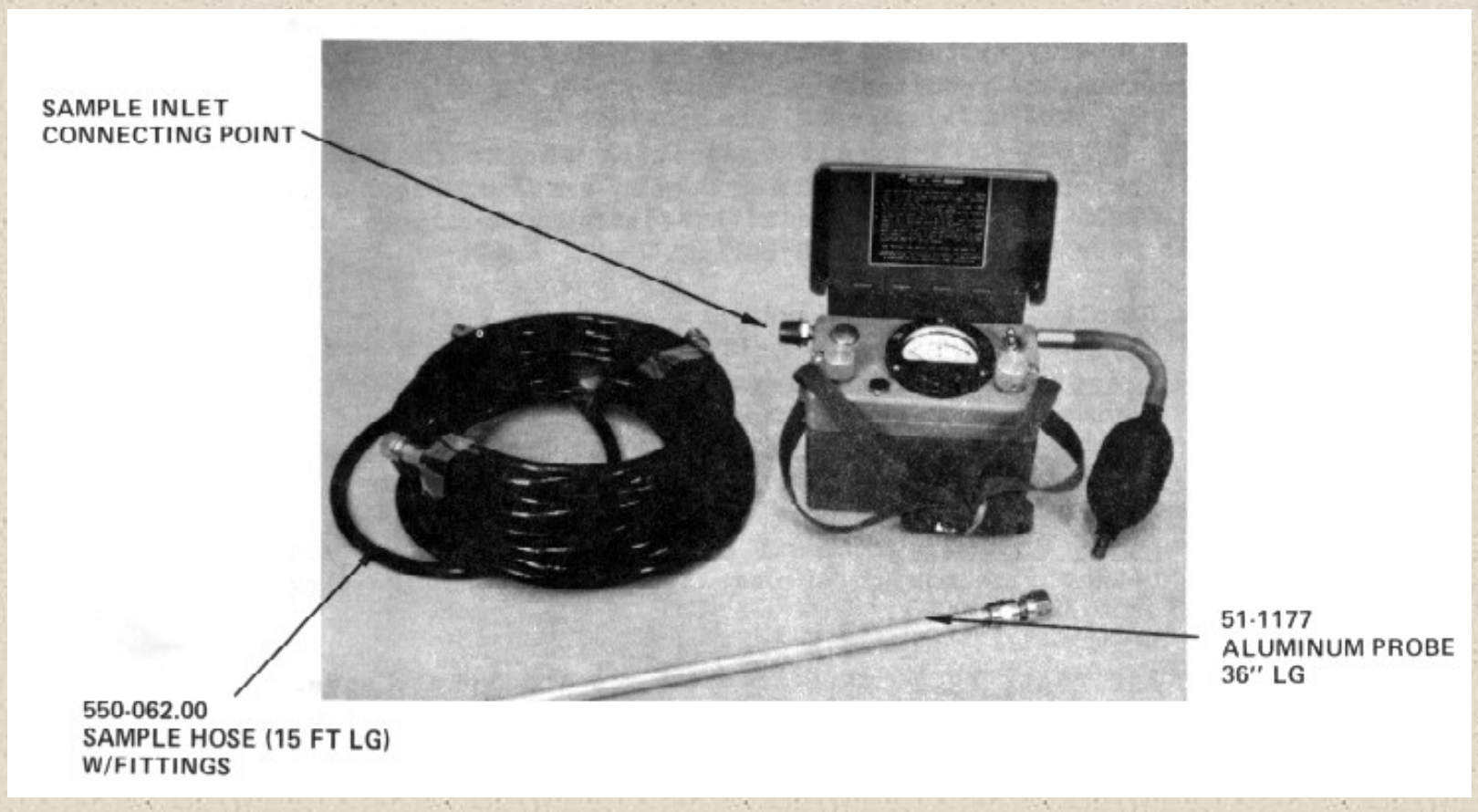
OXYGEN ANALYZER

(MSA MiniOX Responder)

- Handheld meter low alarm 19.5 %
- 10’ drop cord high alarm 22.0%
- on off button low battery alarm
- zero buttonpeak readings
- reset button
- 9 volt battery
- digital display

Combustible Gas Indicators

Bacharach Model GN Type E



Combustible Gas Indicators

Bacharach Model GN Type E

- Cast aluminum body casing
- Squeeze bulb for drawing air sample
- 0-100% LEL meter with 0 adjust knob
- On/Off toggle switch
- Voltage test switch with voltage adjust knob
- Flame arrestors
- 15 ft sampling hose
- Carrying strap

Combustible Gas Indicators

Bacharach Model GN Type E

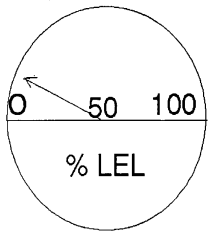
- Operates on 8 D cell batteries
- Measures 0-100% Lower Explosive Limit (LEL)
- *Active Element: heats the gas sample in the reaction chamber, increasing its resistance*
- *Reference Element: maintains circuit balance as batteries are depleted*

Bacharach Model GN Type E Operating Procedures

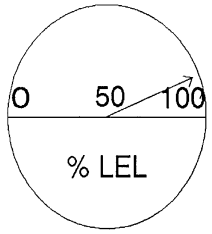
- Open lid and turn on unit
- Push voltage test button
  - Adjust to 50% with Voltage Adjust Knob
- Set initial zero with Zero Adjust Knob
- Perform calibration check
- Attach sampling hose
- Perform Test
  - Squeeze 3-4 times for the machine
  - Squeeze 3 times for every 5 feet of hose
- Monitor meter

Bacharach Model GN Type E
Interpretation of Readings

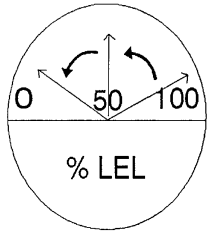
- **Meter pointer deflects to 50%**
  - **50% of Lower Explosive Limit**
- **Meter pointer deflects to 100% and stays there**
  - **Explosive Condition**
- **Meter pointer deflects to 100% and drifts back to zero**
  - **Upper Explosive Limit condition**
- **Meter pointer deflects violently upscale: Active element burned out**
- **Meter pointer deflects violently downscale: Reference element burned out**



LEL



EXPLOSIVE RANGE



UEL

Toxic Gas Detectors - Draeger Multi-Gas Detector

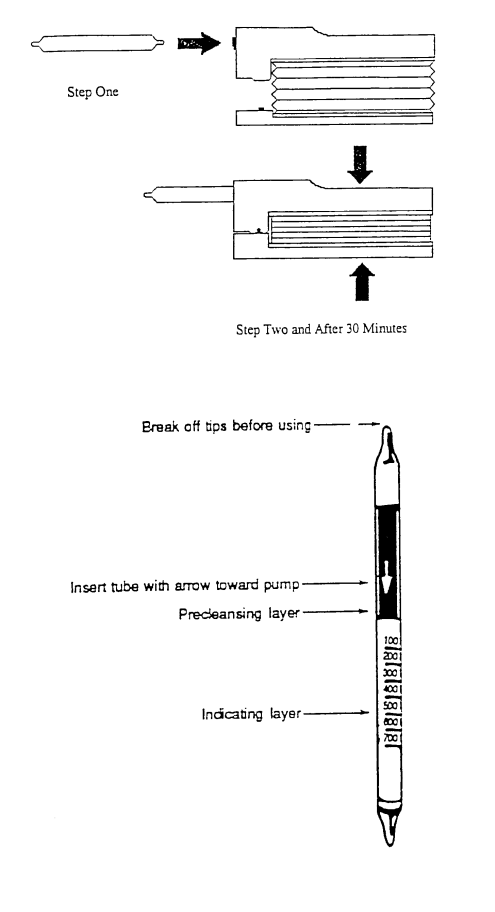
- Plastic Casing
- Rubber Bellows
- Limiting Chain
- Repair Kit
- Carrying case
- Tubes
  - Over 300 kinds

Draeger Tubes

- Shipped in boxes of 10
- Have a two year shelf life
- Each set of tubes has specific instruction sheet
- There are different methods for interpreting readings
  - Direct reading in PPM
  - Color Comparison
  - % of gas by volume
  - Mathematical equation

Draeger Multi-Gas Detector Operating Procedures

- Squeeze bellows
- Insert unbroken tube
- Wait 30 minutes
- Chain should still have slack
- Read instruction sheet



Draeger Multi-Gas Detector Operating Procedures

- Break off both ends of tube
- Insert tube into unit so that *arrow* points to pump
- Squeeze bellows required # of times
- Determine readings

THE END